

THE MILE MARKER

A CALTRANS PERFORMANCE REPORT

2015 THIRD QUARTER ISSUE

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Rate Caltrans' performance for the year p. 3

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Embracing corporate efficiency p.8

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MESSAGE FROM THE CALTRANS DIRECTOR

I think it's safe to say innovation is a hot topic. Plug that word into a search engine and you'll get nearly a half-billion references. Change your search to, "reform" and it's up to 750 million. Replace it with the word "improve" and you'll get nearly a billion references in less than a second.

Caltrans is no exception. Here, innovation is taking center stage. And it's easy to see why. The old highway-expansion model no longer works. It's not that highways are any less important to moving goods and people, but we've learned that simply expanding our highways does not answer the complex needs of a new century.

We've entered an era in which we must preserve what we have, use it as smartly as possible, and link it seamlessly with emerging modes to create a sustainable, integrated and efficient transportation system to enhance California's economy and livability. If that last phrase sounds familiar, it should: It is Caltrans' mission statement.

We're focused on all transportation modes as never before. Our goals for sustainability are as robust as anywhere in the world. We are concentrating on the movement of freight, which represents the commercial engine that powers our economy and defines our quality of life.

Caltrans' mission is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

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We will look to our people for new ideas and new ways of doing things. We will encourage internal participation in crowdsourcing, a proven technique for gathering creative solutions in short periods of time. We must take advantage of the innovative thinking of our workforce and capitalize on it to improve as an organization. We must tap the reserves of creativity and expertise within the Caltrans family to find fresh solutions to the many challenges that we encounter on a daily basis.

I've asked Chief Deputy Director Kome Ajise to build a framework through which we can take advantage of the deluge of ideas and suggestions I'm certain we'll receive. On September 23, we will host our second-ever Town Hall meeting in Sacramento. Mr. Ajise and I will take part in our second real-time live-stream town hall with the people of Caltrans, and innovation will be at the top of our agenda.

We also will reach outside the department, taking a two-pronged approach. First, we're asking stakeholders to tell us what they think in a quick, **online survey**. In this anonymous survey, we're asking stakeholders to rate us on communication, customer service and collaboration. Second, we're conducting a contest created by the Legislature in which the person with the best

innovative idea can win \$25,000. It's called the **\$25K Find a New Way** contest. The deadline **to enter** is October 13, and the winner will be announced before the end of the year.

Taken together, there is an avenue for just about anyone to offer innovations to California's transportation system. Members of the Caltrans family can engage through our internal program. Stakeholders who work with Caltrans from the outside can give us feedback through the **Stakeholder Survey**. And millions of other Californians can enter **\$25K Find a New Way**.

Working together, we will adopt innovations, enact reforms and make improvements that bring us closer to a transportation system that meets California's needs now and into the future.



Malcolm Dougherty
Director of Caltrans

Caltrans Listens

Take our quick anonymous survey here:
https://www.surveymonkey.com/r/exter_sur_9_15
or scan this QR code.

We'll share the
results next issue.



Cover and this page: 165-foot-long precast girder installation in Fairfield, the largest girder installed to date in California.

CALTRANS MILE MARKERS

Performance Measures	Targets	
Goal 1: Safety and Health		
Worker fatalities in work zones	Zero per calendar year	
Auto fatalities per 100 million vehicle miles traveled	0.5 or less	
Bicycle and pedestrian fatalities	Reduce by 10% annually	Pedestrian
		Bicyclist
Increase and improvement in opportunities for safe and accessible active transportation	100% of funds of allocated vs. programmed	Allocated
Goal 2: Stewardship and Efficiency		
Distressed lane miles on state highway system	By FY2024–25, no more than 10% of pavement is distressed	
Bridge Health Index	By 2020, maintain 95 or better rating on Bridge Health Index	
Intelligent Transportation System elements	By 2020, at least 90% ITS elements healthy	
Planned projects delivered in fiscal year	100%	
Goal 3: Sustainability, Livability and Economy		
Per capita vehicle miles traveled	Reduce per-capita VMT 3% per year, so that by 2020 it is 15% lower than it was in 2010 (Most current data from calendar year 2013, previous period data from calendar year 2012) See back page for a Caltrans district map 	



Target Met (by Period)	Current Period	Previous Period	Period Change	Current Period Trend	Desired Trend
<i>“Provide a safe transportation system for workers and users and promote health through active transportation and reduced pollution in communities.”</i>					
✓	0 (Jan-Sept2015)	0 (2014)	0	↔	↓
—	0.67 (2012)	0.66 (2011)	.01	↑	↓
✓	187 (2012)	216 (2011)	-13.4%	↓	↓
—	26 (2012)	17 (2011)	52.9%	↑	↓
—	73% (FY2014-15)	Not previously reported	—	—	↑
<i>“Money counts. Responsibly manage California’s transportation-related assets.”</i>					
—	16% (2013)	25% (2011)	-9	↓	↓
✓	96.3 (FY2013-14)	95.6 (FY2012-13)	0.7	↑	↑
—	66% (Apr-Jun15)	67% (Jan-Mar15)	-1	↑	↑
—	98% (FY2014-15)	98% (FY2013-14)	0	↔	↑
<i>“Make long-lasting, smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl.”</i>					
—	-10.63% (2013)	-10.57% (2012)	-0.06	↓	↓
—	-9.76% (2013)	-8.97% (2012)	-0.79	↓	↓
—	-6.88% (2013)	-8.04% (2012)	1.16	↑	↓
—	-8.25% (2013)	-5.90% (2012)	-2.35	↓	↓
—	-10.12% (2013)	-10.22% (2012)	0.1	↑	↓
—	-7.34% (2013)	-9.84% (2012)	2.5	↑	↓
—	-8.42% (2013)	-8.25% (2012)	-0.17	↓	↓

CALTRANS **MILE MARKERS**

Performance Measures	Targets	
<i>continued from previous page</i> Per capita vehicle miles traveled	Reduce 3% per year from 2010 VMT to achieve 15% reduction by 2020 (Most current data from calendar year 2013, previous period data from calendar year 2012) <i>See back page for a Caltrans district map</i>	District 8
		District 9
		District 10
		District 11
		District 12
Use of non-auto transportation	By 2020 Triple percentage of trips on bicycle Double percentage of trips using pedestrian routes Double percentage of trips using transit <i>From 2010-12 California Household Travel Survey baseline (1.5%, 16.6%, 4.4%, respectively)</i>	Bicycle
		Pedestrian
		Transit
Greenhouse Gas emissions from Caltrans operations	Down 15% from 2010 by 2015 Down 20% from 2010 by 2020	GHG
Goal 4: System Performance		
Percentage of intercity passenger rail trips that reach final destination on time	90% by 2020	
Rate of growth in daily vehicle hours of delay (35 mph or less)	By 2020, less than 8% growth rate	
Goal 5: Organizational Excellence		
Percentage of employees who agree that innovation is encouraged in Caltrans	By 2016, 75% of employees indicate innovation is encouraged, then maintain that level through 2020.	
Percentage of partners who agree or strongly agree that Caltrans is a collaborative partner	By 2016 (or next survey date), increase to 75% the percentage of partners who agree or strongly agree that Caltrans is a collaborative partner. Through 2020, maintain or increase the percentage every year.	
Caltrans’ contracts and procurements awarded to small businesses	Award 25% annually	
Caltrans’ contracts and procurements awarded to disabled veteran business enterprises	Award 5% annually	



Target Met (by Period)	Current Period	Previous Period	Period Change	Current Period Trend	Desired Trend
—	-9.11% (2013)	-8.96% (2012)	-0.15	↓	↓
—	-13.72% (2013)	-11.50% (2012)	-2.22	↓	↓
—	-8.37% (2013)	-7.91% (2012)	-0.46	↓	↓
—	-11.21% (2013)	11.74% (2012)	0.53	↑	↓
—	-10.15% (2013)	-10.53% (2012)	0.38	↑	↓
—	1.5% (2012)	.8% (2000)	0.7	↑	↑
✓	16.6% (2012)	8.4% (2000)	8.2	↑	↑
✓	4.4% (2012)	2.2% (2000)	2.2	↑	↑
✓	157 metric tons	199 metric tons	-21%	↓	↓
<i>“Utilize leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers.”</i>					
—	84.4% (SFY2014-15 Q4)	84.7% (SFY2013-14 Q4)	-0.3	↓	↑
—	13.4% (2014)	15.8% (2013)	-2.3	↓	↓
<i>“Be a national leader in delivering quality service through excellent employee performance, public communication, and accountability.”</i>					
—	55% (2013)	45% (2008)	10	↑	↑
—	65% (2007)	65% (2002)	0	↔	↑
✓	28.4 (FY2014-15)	28.24 (FY2013-14)	0.16	↑	↑
—	3.83 (FY2014-15)	3.79 (FY2013-14)	.04	↑	↑

L-R: Lean 6-Sigma Greenbelts and their supporters: Associate Government Program Analyst Dee Lam, Deputy District 12 Director of Administration Gloria Roberts, Administration Deputy Director Cris Rojas, Caltrans Deputy Attorney Gina Cardoza, Lean 6-Sigma Program Manager Julie Dunning, Assistant Information Systems Analyst Adrian Sanchez and California State Transportation Agency Secretary Brian Kelly.

Caltrans Embraces Corporate Efficiency Methods

Lean 6-Sigma integrates the powerful improvement tools of "define, measure, analyze, improve and control" or "DMAIC" into a five-phase methodology to improve production and reduce wasteful or unnecessary practices and processes.



As part of its [Strategic Management Plan](#), Caltrans has identified a Lean 6-Sigma objective as part of its Organizational Excellence Goal. World corporate leaders, including Toyota, Motorola and General Electric have used Lean 6-Sigma training to increase production by systematically fixing wasteful or unnecessary practices and processes. The vision for the Caltrans Lean 6-Sigma program is to train 15 employees as "Green Belts" by December 2015 and 10 additional Green Belts every year through 2020.

Green Belt candidates are top-performing staff who embrace the opportunity to drive transformational improvements in their work areas. Green Belts demonstrate excellent leadership skills, technical abilities, and enthusiasm for making changes for the better. The Green Belts are trained in the Lean 6-Sigma tools and receive one-on-one mentoring from a trainer who is a Master Black Belt.

What is Lean 6-Sigma?

"Lean 6-Sigma" combines two very powerful methodologies into a single, integrated approach to improving processes. "Lean," developed by the Toyota Motor Corporation in the early '60s, focuses on improving efficiencies and reducing waste. "Six Sigma" was developed by Motorola, Inc. in the mid '80s and focuses on improving quality and reducing defects by properly using data and metrics. The complementary nature

of Lean and Six Sigma has proven to be extremely effective in making rapid and transformational improvements across a wide variety of organizations and processes.

The Lean 6-Sigma approach is designed to produce substantial results using a data-driven, focused approach to an organization's problems. For example, many departments within organizations suffer from backlogs, delays, errors, and significant customer and employee dissatisfaction stemming from what appears to be too much work for too few people. These organizations often react by demanding more employees, if the budget allows it. Instead, a Lean 6-Sigma approach is to attack the sources of inefficiencies and errors so the same number of employees can process considerably more work with virtually no defects and with a much higher level of customer and employee satisfaction.



Lean 6-Sigma integrates a set of powerful improvement tools with a five-phase “DMAIC” methodology that forms the roadmap for the way an organization changes its processes and its culture:

- Define phase determines exactly what is the problem to be addressed and creates the corresponding project charter.
- Measure phase computes the baseline performance of the process, gathers data on the potential causes of the problem, and checks the measurement system that is being used to provide the process data (or creates a measurement system if one does not currently exist).
- Analyze phase uses the data to uncover the root causes of the problem.
- Improve phase determines and implements fixes for the root causes.
- Control phase institutionalizes the fixes so that the improvements are permanent.

Why Do It?

In early 2014, the Governor’s Office of Business and Economic Development (GO-Biz) and the Government Operations Agency partnered to train the first group of state agencies to pilot a Lean 6-Sigma program that would specifically address process-based issues within 11 state departments that were causing internal and external delays in services. This year, GO-Biz partnered with Global Productivity Solutions to provide a Lean 6-Sigma Green Belt program to 14 departments. Over a six-month period, participants received training on complex analytical and statistical tools that identify waste and inefficiencies in processes, and then applied these tools within Green Belt projects to make significant improvements in their areas.

This July, GO-Biz awarded the first five Caltrans employees with their Lean 6-Sigma Green Belt Certification. Each candidate also completed their own projects to improve processes within Caltrans.

Lean 6-Sigma Green Belt projects were completed in the following Caltrans areas:

- The Equal Employment Opportunity Program reduced the backlog in the discrimination complaint investigation process by getting correct information upfront. Once the plan is implemented, 95 percent of all investigations should be done within 45 business days.
- Information Technology reworked its intake process so that 95 percent of all intake requests are completed within two weeks.
- The Division of Research, Innovation and Systems Information eliminated unnecessary work and balanced the rest so that Caltrans can produce twice as many Traffic Collision Reports per day.
- Caltrans District 12 made a cross-functional process map to link the department’s land and building assets with their worth. Caltrans did not have this before, and the department now has the data to back up its Property Accounting of Operational Land and Buildings.
- Safety and Management Services identified standard procedures, timelines and guidelines for supervisors conducting workplace violence investigations. After the Caltrans safety manual is updated and these changes are implemented, 95 percent of all investigations should be completed within five working days.

Lean 6-Sigma in Caltrans’ Future

This July, Caltrans independently secured a contract with Global Productivity Solutions to launch its own Lean 6-Sigma initiative. In the first wave, eight new projects will undergo Lean 6-Sigma methodologies to identify improvements or a reduction in processing times, or both, and eight more Green Belts will be certified by the end of the year. Caltrans anticipates a second contract and wave of projects will begin in December 2015/January 2016.

By December 2016, Caltrans will complete Lean 6-Sigma reviews on 30 internal business processes and at least 15 additional projects each subsequent year through 2020. To make sure Caltrans meets its targets and establishes a sustainable Lean 6-Sigma Program, the program’s second phase will include Black Belt-level training. The Black Belts will then begin training and overseeing new Green Belts and projects in the department.

*Source: Caltrans Lean 6-Sigma Program
Contributor: Julie M. Dunning*

A dark blue car is shown from a front-three-quarter view. The word "Where the" is in white, and "LASER" is in yellow with a black outline. Yellow laser lines emanate from the "LASER" text, fanning out across the road surface.

Where the LASER

Meets the Road

Digital Scanning Brings New Precision to Pavement Reporting

After generations of estimating pavement conditions from visual inspections, Caltrans is adopting cutting-edge technology that will give it the most complete and accurate picture of California's highways that it has ever had.

Caltrans is creating a pavement management system that could reduce the cost to design and maintain the state's highways using a combination of radar, lasers and automated pavement scanning machines, as well as advanced computer modeling.



Until recently, Caltrans engineers assessed the condition of the state highway's pavement by visual surveys. The department has added ground-penetrating radar images that show engineers what is beneath the surface and is using laser technology to scan every inch of the system, including GPS coordinates for every pothole and crack.



In this video, Supervising Caltrans Transportation Engineer Tom Pyle explains the difference in how the department used to collect pavement data and the way it now collects it with the automated survey. He also shows some of the information available with PaveM that Caltrans can use to better maintain the state's pavement.

In years past, crews of six would drive every highway and freeway in the state, stopping every mile to examine a 100-foot section. From their observations of that section they would predict the condition of the entire mile. From those approximations—the best that was available for decades—Caltrans compiled the annual State of the Pavement Report.

That report informs the public of the condition of the state's roads and lays out the resources required to maintain the system. With the more complete picture becoming available from its new high-tech programs, Caltrans will be able to predict resource needs more accurately and precisely.

Instead of six-person crews, Caltrans now deploys specially equipped vehicles that travel at normal highway speeds, gathering high-definition images of the road surface using lasers and noting the GPS location, depth and width of each crack, rut and bump along the way.

Recently, Caltrans literally looked deeper at wear and tear on pavement. In specially equipped vehicles much like those used for the pavement survey, ground-penetrating radar mapped the entire subsurface of the state highway system. It's like an X-ray of the road. This was the largest ground-penetrating radar pavement survey in the world.

This underground radar mapping adds a new dimension to pavement maintenance planning for Caltrans. Before, if Caltrans wanted an idea of what lay beneath the surface, it had to shut down a lane of roadway and take an expensive core sample. Now, by knowing the road's composition, not only on top but beneath, Caltrans can better predict how that stretch of road will wear over time and can make better decision about where to use maintenance dollars.

Caltrans is developing a new way to monitor roads and aid engineers in selecting projects using the Pavement Management System (PaveM). Caltrans will combine data from both the pavement survey and the ground-penetrating radar survey to create models that include all the factors that can contribute to pavement's wear and tear—from the road's composition, to climate, to traffic flows, to the composition of the ground underneath the roadbed. All this information allows Caltrans engineers to create better predictions of when roads will require maintenance work and make recommendations about the most cost-effective treatments.

Addressing pavement needs early costs about an eighth of what it costs to do major rehabilitative work on a road, and PaveM will help Caltrans better invest taxpayer dollars by helping the department better identify pavement needs.

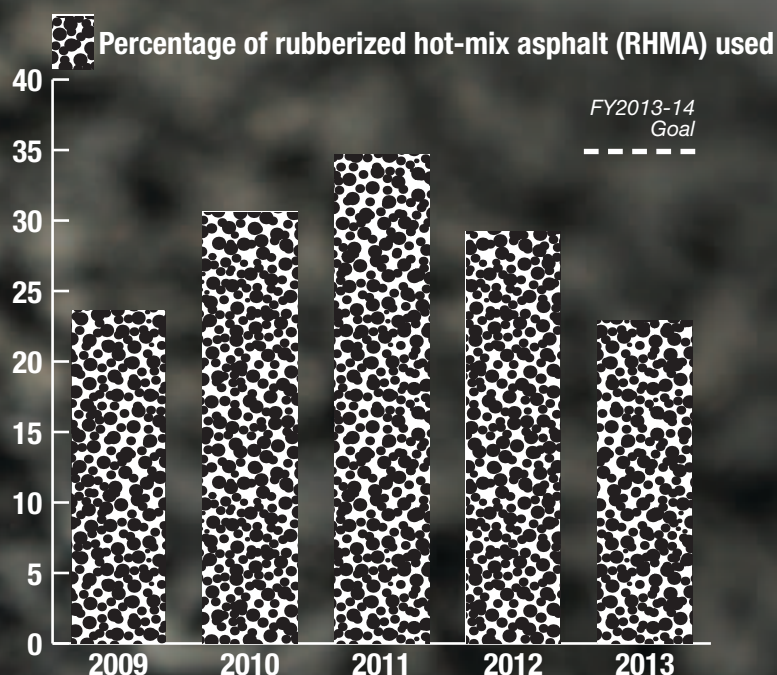
*Source: Division of Maintenance,
Office of Pavement Management & Performance
Contributors: Tom Pyle*

Crumb rubber from recycled tires is added to asphalt pavement. This not only reduces the number of tires that end up in landfills, it also adds elasticity to the pavement, making it more resistant to cracking and stress from temperature changes.



Crumb Rubber Usage Goal In Need of a Bounce

California law requires Caltrans to use 11.58 pounds of crumb rubber modifier per metric ton of its total asphalt paving material. This means that Caltrans must use crumb rubber in about 35 percent of the total hot-mix asphalt it places statewide. In 2012, however, only about 29 percent of Caltrans' statewide asphalt paving used rubberized hot-mix asphalt (RHMA – hot-mix asphalt containing crumb rubber), and in 2013, the amount dropped further to about 23 percent. This was due to a higher percentage of projects that require conventional asphalt for the base layers. Asphalt containing crumb rubber can only be used on the top two inches of the pavement surface. If the base layers were excluded from the overall calculation, the percentage of asphalt containing crumb rubber would be 37 percent, rather than the 23 percent calculated using the total amount of all asphalt paving materials.



This graph shows that in 2011, Caltrans used more than 2.6 million tons of RHMA in its statewide asphalt paving. Caltrans' mandated goal in 2013 was that at least 35 percent of the highway system's asphalt pavement be RHMA. By 2013, however, the amount had decreased to about 1 million tons, dropping the percentage of asphalt pavement that used crumb rubber to only 23 percent.

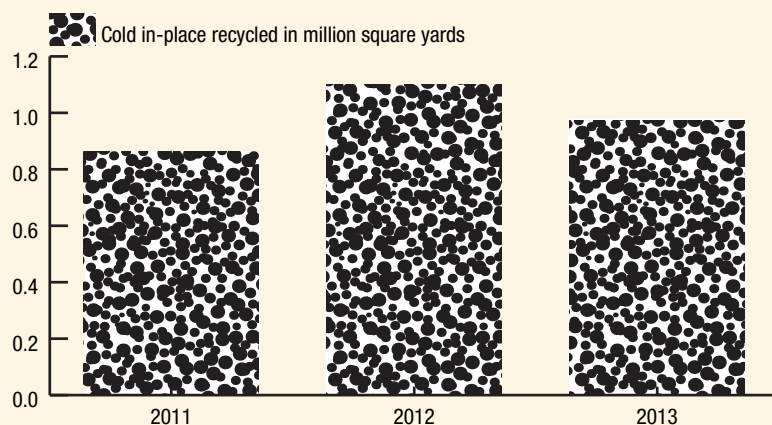
RHMA uses recycled tires, and every mile of RHMA pavement prevents 150 old tires from going to landfills. RHMA also adds elasticity to the highway, making it less susceptible to cracking and stress from temperature changes.

While the initial cost of RHMA is higher than the cost of conventional asphalt – up to 38 percent more – RHMA is cost effective when used to resist cracking. About half as much RHMA is needed to prevent cracking in overlays than would be needed if conventional asphalt were used.

To make sure Caltrans meets its legally mandated use of crumb rubber, the department is requiring that all asphalt paving projects use RHMA. If RHMA is not used, the Caltrans district director for the project area must approve an exemption stating that RHMA is not an appropriate option. Caltrans is also updating the "Flexible Pavement" section of its Highway Design Manual to identify RHMA as the default surface pavement. In some situations, however, RHMA is not appropriate for a project. For instance, RHMA may not be economical for jobs requiring 1,000 tons or less of asphalt, and it is not a good alternative if it will be placed in temperatures

below 45 degrees or in elevations above 3,000 feet. Furthermore, because of its flexibility, RHMA can only be used in the top 2 to 2.5 inches of the pavement surface and cannot be used below that.

Another “green” pavement Caltrans uses is cold-in-place recycling that removes old paving material, reprocess it on-site, and places it as a new roadway. Cold-in-place recycling projects are targeted for use on rural two-lane highways that are vital to tourism throughout California. In 2013, Caltrans’ funding for cold-in-place recycling was about \$23 million. In fiscal year 2014–15, however, there was a one-time \$45 million boost to repair and replace rural two-lane highways with cold-in-place recycled asphalt to increase safety and protect the environment. The amount is expected to become stable at \$18 million annually in the future.



Since 2012, Caltrans’ use of cold-in-place pavement recycling has remained at about 1 million square yards each year. In fiscal year 2014–15, there was a one-time \$45 million boost to repair and replace rural two-lane highways with cold-in-place recycled asphalt to increase safety and protect the environment. The amount is expected to stabilize at \$18 million annually.

Caltrans also is proposing to recycle old asphalt roofing shingles and use the material as a component of new asphalt. Adding recycled asphalt shingles or reclaimed asphalt pavement reduces the amount of raw materials that have to be mined or refined. Caltrans is developing specifications that would allow the use of up to 5 percent recycled asphalt shingles and up to 40 percent reclaimed asphalt pavement in its hot-mix asphalt.

And, because freeway traffic can create noise in urban areas, Caltrans is testing different techniques to help reduce noise on both concrete and asphalt pavements. For concrete, the “next generation grind and groove technology” smoothly grinds concrete pavements and reduces tire-pavement noise. Open-graded asphalt concrete leaves small voids on the pavement surface to reduce tire-pavement noise, and these sustainable pavements can be used when soundwalls are not practical.

Source: Division of Maintenance Contributors: Susan Massey, Bob Moore and Douglas Mason

Newly laid rubberized hot-mix asphalt is placed on State Route 33 in the cities of Patterson and Newman in Stanislaus County.



From Planned to Funded

73 Percent of Active Transportation Funds Allocated

Caltrans recently added a strategic goal to triple cycling and double walking and transit use statewide by 2020, making bicycle and pedestrian facilities integral components of the statewide transportation system. It helps that Caltrans already assists local agencies in navigating the various state and federal funding requirements necessary to build their transportation projects. For the Active Transportation Program (ATP), which funds most of California's walking and biking projects, these requirements include time limits. For example, a project must receive its allocation of funding in the same year that it's "programmed," essentially meaning when it has been identified as a priority project worth funding. Caltrans set a goal that 100 percent of project funds programmed are successfully allocated for the ATP.

As of July 1, 2015, the California Transportation Commission, or CTC, had programmed \$102.3 million of funds for 188 ATP projects for 2014-15. As of that same date, \$74.9 million, or approximately 73 percent, of those funds had been allocated. Of the unallocated funds, 24 percent were approved for time extensions. The local agency chose to use local funds for the remaining 3 percent, allowing these unallocated funds to revert to the ATP to fund additional projects.

The Road to Funding

As with many transportation projects, the path for funding ATP projects comes in stages: application, selection, and programming and allocation. The key with transportation programming is assembling a package of projects to be funded for a certain period, given budget constraints and funding priorities. When a project is "programmed," its funding has been identified and it is added to an

agreed-upon list of specific priority projects called the Transportation Improvement Program. In the case of the ATP, it is a list approved by the CTC. This, however, doesn't yet represent a commitment of funds or an obligation to fund for that project.

Once an ATP project is programmed, the design, environmental and right-of-way phases can begin. This includes information about the project's ultimate scope, schedule and cost, as well as studies to analyze the project's environmental effects. During this process, Caltrans' Division of Local Assistance provides guidance and support, and the local agencies are responsible for ensuring these studies and documents are in order. Once they are, the project is ready to be formally approved by the CTC to receive an allocation of funding for construction.

There are time limits, however: funding allocations for a project must be made in the same year in which the funding is programmed. The laws requiring the prompt use of funds are intended to encourage local and regional agencies to accurately program, monitor and deliver projects in a timely manner. More accurate programming and project delivery also enables the CTC to manage and plan future transportation funding more effectively.

Coming Up Next

For the 2015-16 fiscal year, 184 ATP projects worth \$266.9 million were programmed. This is the remaining portion of money that was set aside for Cycle 1 of the ATP. Cycle 1 represents three fiscal years' worth of funding (13-14, 14-15 and 15-16). The agencies that applied for this project funding have until June 30, 2016, to fulfill any necessary documentation and to request that these programmed funds be allocated.

The bicycle and pedestrian projects funded by the ATP not only encourage increased use of active modes of transportation, but they support sustainable communities and healthier, low-carbon travel choices. Caltrans will continue to do its part in helping local and regional agencies deliver biking and pedestrian projects throughout California in an efficient and effective manner.

*Source: Division of Local Assistance
Contributor: Jaime Espinoza*

Caltrans Project Delivery at

98%

Caltrans presents a Project Delivery Report to the California Transportation Commission (CTC) quarterly, and to the Governor and the Legislature upon completion of the fiscal year (FY). Beginning FY2014-15, Caltrans revamped the document to be a plain-language performance report, increasing transparency and accountability. New features in the report are:

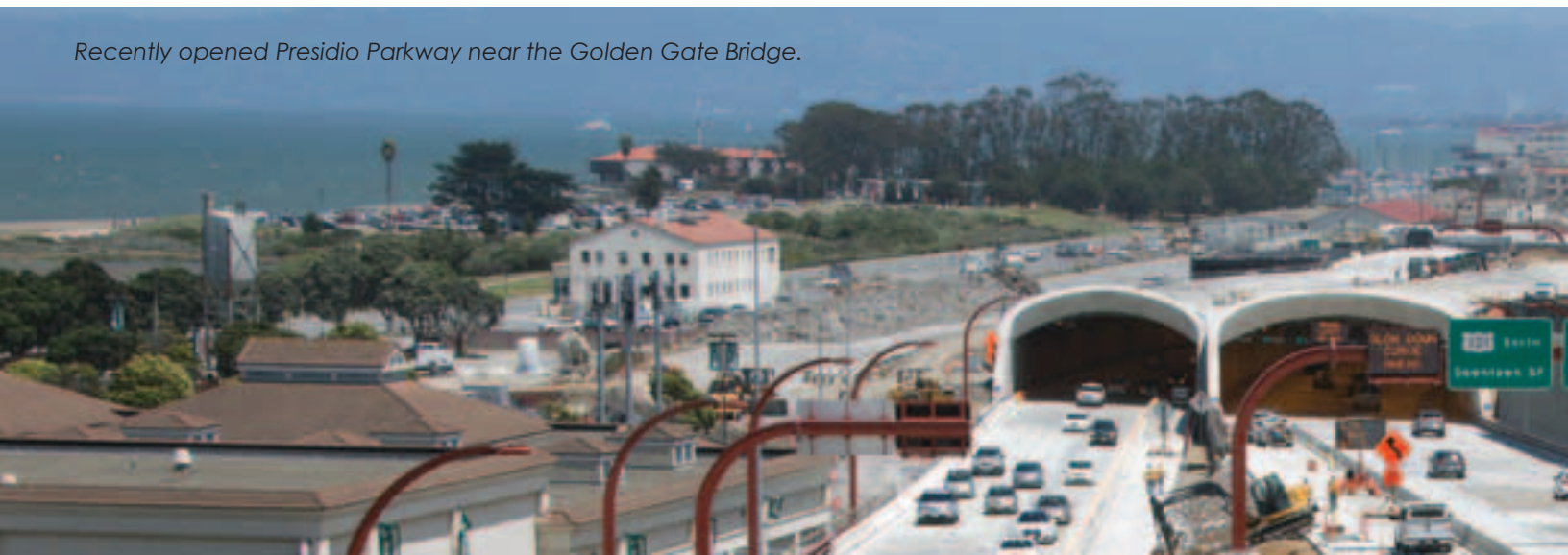
Measuring and Reporting Project Delivery Performance Measures

The executive summary includes a performance measure table, and nine project delivery-related measures to give the reader a snapshot of Caltrans' performance. The table provides a current status of the measures and an end-of-year forecast on project delivery performance goals. The report is divided into five sections: projects being delivered; projects being constructed; property being acquired; project approvals and projects that complete preliminary engineering and environmental documents; and project costs to the budget.

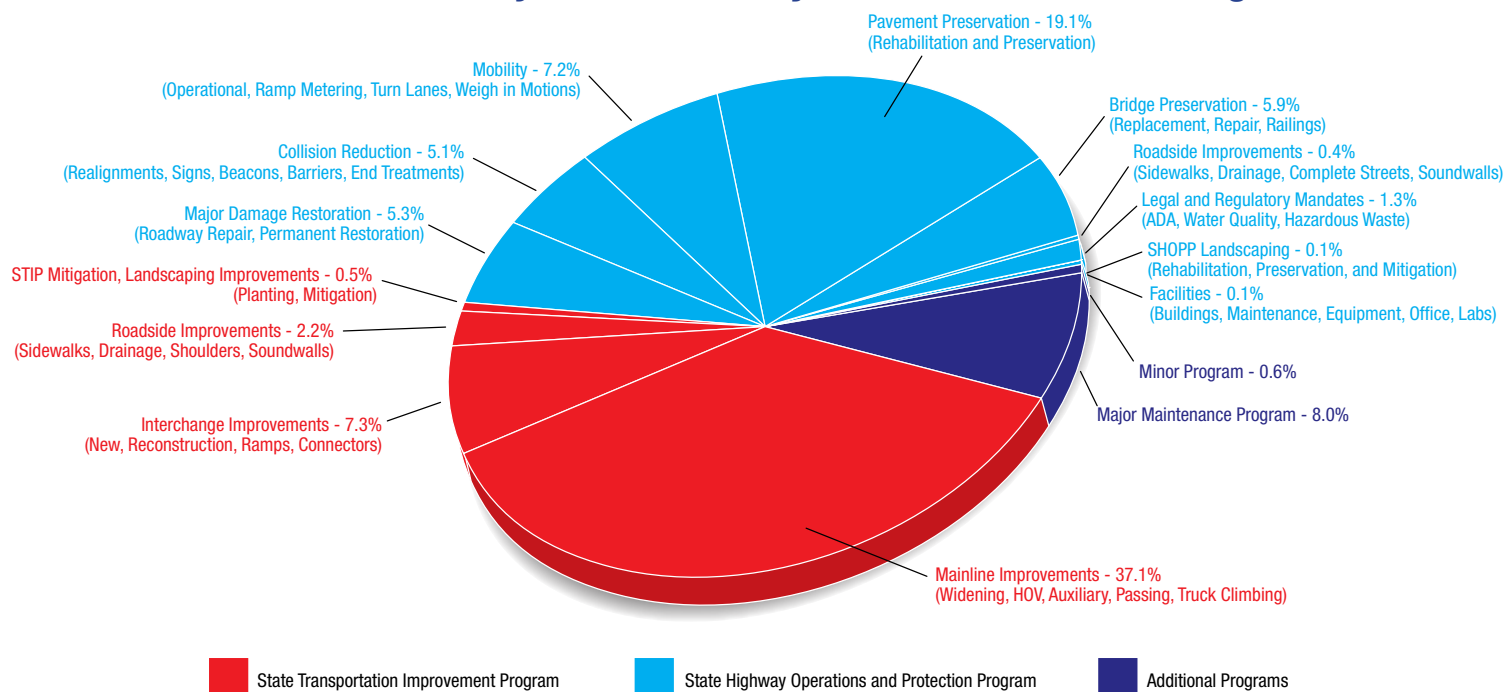
Project Delivery Performance for Fiscal Year 2014–15				
Measure	Annual Commitment			Goal Percent
	Delivered	Plan	Percent	
Delivery				
Projects Ready for Construction	337	343	98	100
Capital Value Ready for Allocation (millions)	\$2,465	\$2,633	94	100
Project Approval, Environmental Documents				
Projects Approved	225	258	87	90
Draft Environmental Documents Completed	59	74	80	75
Right of Way				
Projects Certified	324	335	97	100
Allocation Funds Committed (millions)	\$163	\$163	100	100
Construction				
Contracts Completed and Accepted	154	174	89	90
Closeout Costs				
State Transportation Improvement Program Costs	NA	NA	94	< 100
State Highway Operations and Protection Program Costs	NA	NA	91	< 100

Caltrans sets high Project Delivery goals, and this table shows that of the nine performance measures in Caltrans' 2014-15 Project Delivery Report, the department met its goals in four of them: draft environmental documents completed; allocation funds committed; and State Transportation Improvement Program, and State Highway Operations and Protection Program costs.

Recently opened Presidio Parkway near the Golden Gate Bridge.



Constructed Project Outcomes by Contract Value Percentages



The chart above shows the distribution of contract value percentages by category on contracts accepted in FY2014–15. Caltrans' primary programs are the STIP, the SHOPP, and local projects where the department provides project services. Mainline improvements in the STIP (the largest red wedge) and pavement preservation in the SHOPP (the largest blue wedge) made up about 56 percent, or more than half of the constructed projects in FY2014–15.

Planning and Measuring Project Outcomes

Dollar values are broken into categories of measurable project outputs, such as roadway preservation, bridge preservation and mainline (freeways). Operational improvement projects help the existing highway system function more

efficiently. System preservation projects, such as bridge and pavement rehabilitation help the highway system last longer and decrease maintenance costs. Safety projects reduce traffic fatalities and serious injuries. System expansion projects add capacity by adding lanes or constructing new highways.



Managing Project Delivery Risks

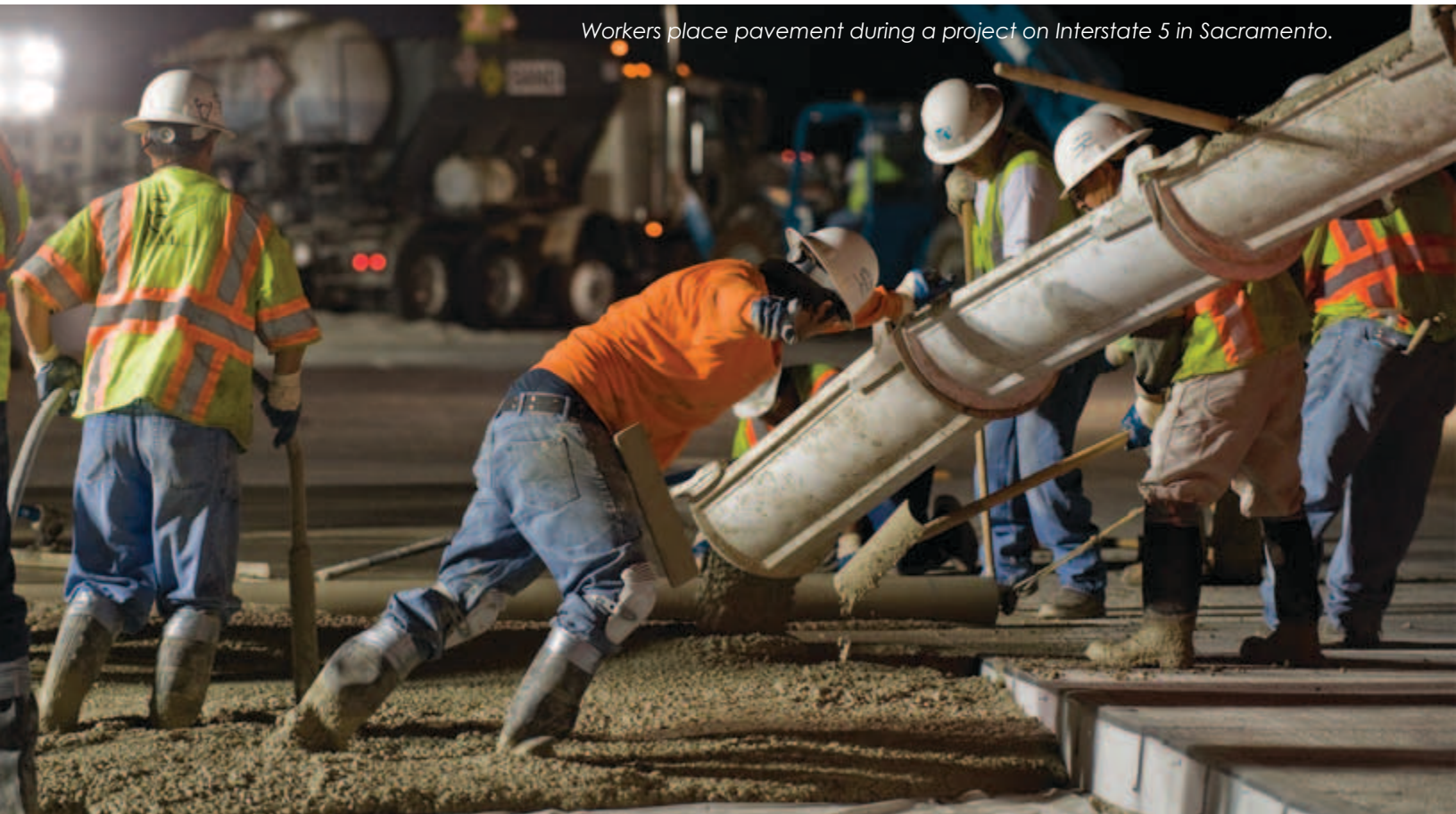
Caltrans has committed to a transparent “No Surprises” system of reporting that calls attention to project issues as they occur. A “[project watch list](#)” notifies the CTC members about projects that may require future action by the CTC. The watch list also provides insight for the public into the challenges that Caltrans faces when constructing projects. For example, projects often require Caltrans to reach agreements with permitting agencies and property owners before the project is ready for construction.

This graphic shows two examples from Caltrans’ Project Delivery “Watch List.” The project at the top is from the “Construction Projects Completed or Nearly Complete” section for a metal beam guardrail project on Interstate 10 in Los Angeles and is at high risk of needing future action from the CTC because it may need additional funds, or construction capital, to close out the project. The second item, a project to replace/retrofit a bridge deck on State Route 120 in Tuolumne County is at risk of not being delivered on time and of needing future CTC action, but in this case, the risk is low.

Project Watch List

County	Route	Description	Program	Capital \$	Support \$	Risk	Trend	Component
LA	10	Metal Beam Guardrail	SHOPP	\$2.7	\$3.3	H	=	Construction Capital
Additional funds may be needed to close out the construction contract. Issues include quantities (to meet field conditions), right-of-way delay, and costs to remove a fixed object. During construction, the contractor encountered existing underground electrical systems and buried man-made objects that conflicted with contract work. Crash cushions hit and damaged during construction need to be replaced. Work is safety related, not recommended to eliminate safety elements.								
Tuo	120	Replace Bridge Deck, Retrofit	SHOPP	\$13.7	\$5.8	L	=	Fiscal Year Delivery
Getting cooperative agreement approval from local agency for Stage construction, use of local road detour, and compensation for local road repair. Caltrans is devoting resources to work through risks and address concerns.								

Risks are categorized as: VH Very High H High M Moderate L Low
Trends are defined as: ↑ Higher = Same ↓ Lower



Workers place pavement during a project on Interstate 5 in Sacramento.

Fiscal Year 2014-15

“Contract for Delivery” Results

Caltrans delivered 98 percent—337 of 343—planned projects, and invested \$2.465 billion of \$2.633 billion, or 94 percent, of planned construction capital dollars.

Caltrans sets a high standard of 100 percent for project delivery, but also understands the value of taking intelligent and agreed-upon risks to deliver projects. Stakeholders are demanding faster and more efficient project delivery. Taking risks to be more efficient and deliver a program faster will likely lead to some projects not being delivered as committed, which is acceptable as long as the program is being delivered faster.

Caltrans staff statewide work hard with project stakeholders to negotiate the regulatory and permitting processes to secure project approvals and move them to construction. Sometimes projects can be challenging to deliver due to last-minute change requests and requirements to secure project approvals. Below is a summary of risks encountered on the six projects that were not delivered as planned:

Funding Challenges

Three projects were delayed due to challenges with lack of funding. Caltrans stopped work while the local agency secured appropriate funding to complete the projects. Additional funding was eventually secured, but it was too late to deliver within the fiscal year. This was the right decision in terms of stewardship, transparency and accountability.

Caltrans and its partners replaced a train truss in California's Inland Empire in 2014.

External Agreement Challenges

- One project was delayed because Caltrans took a risk with a less complex environmental document to deliver the project faster. A permitting agency, however, insisted on a more complex document to issue a permit, and Caltrans is developing the new environmental document. Based upon its experience with this project, Caltrans decided to prepare more complex environmental documents for three similar future projects.
- One project was delayed by a construction and maintenance agreement with a railroad. It is a complex location, and it was identified as a known risk before making the delivery commitment.
- One project was delayed because of a late need to change the mitigation site. The previously identified site was no longer appropriate. Mitigation was required to obtain a permit. Caltrans worked hard to obtain the new site, which is expected to be secured soon.

*Source: Division of Project Management
Contributor: Matt Bailey*



Lathrop Road overpass on Crestwood Avenue in Manteca California. The Manteca 99 Widening project, part of the voter-approved Proposition 1B Bond Act, widened SR-99 from State Route 120 to Arch Road.



Clearing the Manteca Bottleneck

It was a 10-mile bottleneck from Manteca to Stockton, an important trade corridor that links the northern and southern central valley, and anyone who used State Route 99 knew it. That particular stretch of constricted highway slowed the movement of goods, added frustrating delay for commuters, and increased the emission of greenhouse gases associated with global climate change.

While the need to open that bottleneck was never in question, the project team still faced many challenges in timing and funding before completing it in July.

This \$158 million project widened SR-99 from four to six lanes, beginning south of State Route 120 to just north of Arch Road, adding a lane in each direction within the existing median. Within the project limits, over 108,000 vehicles traveled along the highway each day. This new stretch of highway has improved traffic flow and saved motorists a daily delay average of 12,592 hours. This meant that motorists now had 18 continuous miles of three-lane highway in each direction through Stockton and Manteca, as it combined with the South Stockton Widening project (4 miles) and the prior widening to the north from State Route 4 to Hammer Lane (4 miles) in Stockton.

The project also replaced the Main Street/Lathrop Road Interchange, reconstructed the French Camp/Turner Station Interchange, constructed soundwalls and concrete median barriers and installed ramp metering for more efficient use of the system. The newly incorporated ramp meters are the first in three counties along SR-99 (Merced, Stanislaus and San Joaquin).

In many ways, the project was a race against time. Because it relied on Proposition 1B funds, it had to be ready for construction no later than December 2012. That meant Caltrans and the project development team had to quickly deliver the project and award the contract to a construction firm. Meeting the Proposition 1B requirements also meant a compressed timeline to acquire property for the interchanges. In addition, the team had to align environmental requirements with need and purpose, while addressing community concerns regarding the location and configuration of the Main Street/Lathrop Road Interchange.

To overcome these schedule challenges, the project development team—which included the San Joaquin Council of Governments (the project sponsor), Caltrans District 10 Program Project Management (owner operator/project manager), San Joaquin County, the city of Manteca and the architectural and engineering firm HDR Inc.—met to strategize several times, held multiple community meetings and ultimately decided to deliver the project as four separate construction projects. The mainline widening portion came first, followed by the two interchanges, and finally the mitigation planting/landscape project (not yet constructed due to the drought). This would allow for sequencing of the project, more competitive bidding and potential overall cost savings.

By delivering the widening portion of the project first, Caltrans was able to take advantage of a slack construction market, which garnered favorable bids. Declining oil prices also yielded savings. Across the board, the weakened economy meant costs were lower than originally anticipated. The combination of these factors saved \$92 million dollars that was allocated instead to other projects along the SR-99 corridor.

The final phase of the project involves the replacement and mitigation planting after all roadway construction is complete and funded with the local measure funding. Separating the project into phases proved beneficial in allowing Caltrans to revamp the final phase of landscaping to incorporate drought-resistant plants. Caltrans anticipates that work on this phase will begin in the spring of 2018.

Funding came from a variety of sources: \$36 million from Measure K, the half-cent sales tax dedicated to transportation projects in San Joaquin County, and \$89 million from Proposition 1B—the \$19.9 billion transportation bond approved by California voters in 2006. The remaining \$33 million came from the State Transportation Improvement Program. Through a partnership between Caltrans, the city of Manteca and local agencies, 17 businesses were relocated and stayed in the city without a loss of business, and the new highway extension can attract new business.

“With the collaboration of local and state organizations it’s really government at its best when we all work together for the cause of the people” said Caltrans Deputy Director Kome Ajise.

Lessons learned:

When staging a project that was originally one large project, timing is extremely important and transitions between the projects need to be carefully thought out. This was one aspect of this project that could have been done better, according to project leaders. Their biggest challenge, they concluded, was communication. For example, if one segment of a contract needs to be completed prior to another segment from a different contract, that should be spelled out in the project specifications. If there is a delay in the project funding for one segment, project leaders concluded, revisiting the stages is important to identify any conflicts or work that could be moved from one segment to another for ease of construction and efficiency.

Even with those challenges, the bottleneck was opened, that stretch of highway is safer and more efficient, and all phases of the project were delivered on time.

Source: Caltrans District 10

Contributors: Joy Pinne and Greg Lawson





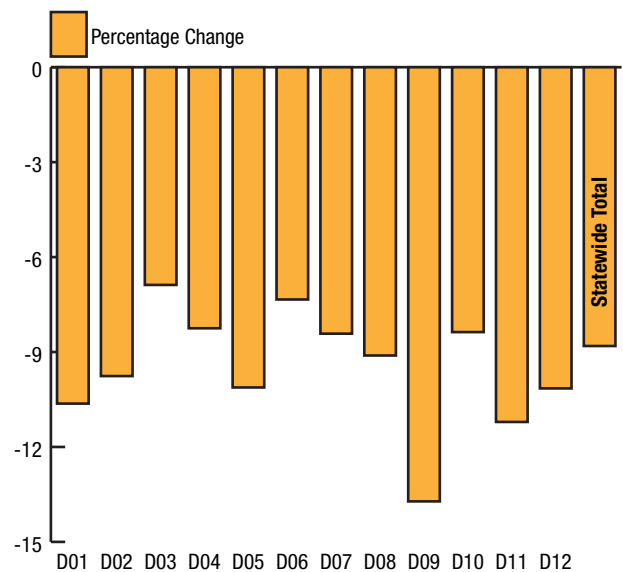
Travel Options Change Travel Behavior

In 2013, the annual vehicle miles traveled per capita in California dropped between 6.88 and 13.72 percent per district from the 2010 baseline per capita vehicle miles traveled, with a statewide average of an almost 9 percent reduction. Caltrans' goal is a total reduction of 15 percent, relative to 2010 levels, by 2020 for each district.

Caltrans' mission is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. Achieving that includes giving people in California a choice in how they travel. Smart land use for new growth in which housing, jobs and retail space are in closer proximity enhances mobility choices such as biking, walking, transit and rail, which reduce people's dependency on automobiles as their primary travel options. With its per capita vehicle miles traveled reduction target, Caltrans can help the state meet greenhouse gas reduction targets set by the California Global Warming Solutions Act of 2006. A reduction in per capita vehicle miles traveled will also help the state meet the greenhouse reduction target of 40 percent below 1990 levels by 2030, and will make it possible to reach the ultimate goal of reducing emissions by 80 percent below 1990 levels by 2050 as set by [Executive Order B-30-15](#).

Source: Division of Transportation Planning
Contributor: Melody Friberg

2013 Annual Vehicle Miles Traveled Per Capita*
Percentage Change from 2010 Baseline



*by district

Source: Caltrans, DRISI, Highway Performance Monitoring System, California Department of Finance Demographic Research Unit

This graph shows that per capita vehicle miles traveled vary between Caltrans districts. In 2013, the overall statewide average reduction was almost 9 percent. Caltrans' goal is to reach a 15-percent reduction, relative to 2010 levels, by 2020 for each district.

Giving travelers options in how they travel, such as biking, walking, transit and rail can help reduce the per capita vehicle miles traveled in California.

Caltrans Sets Goal to Manage Traffic Delay



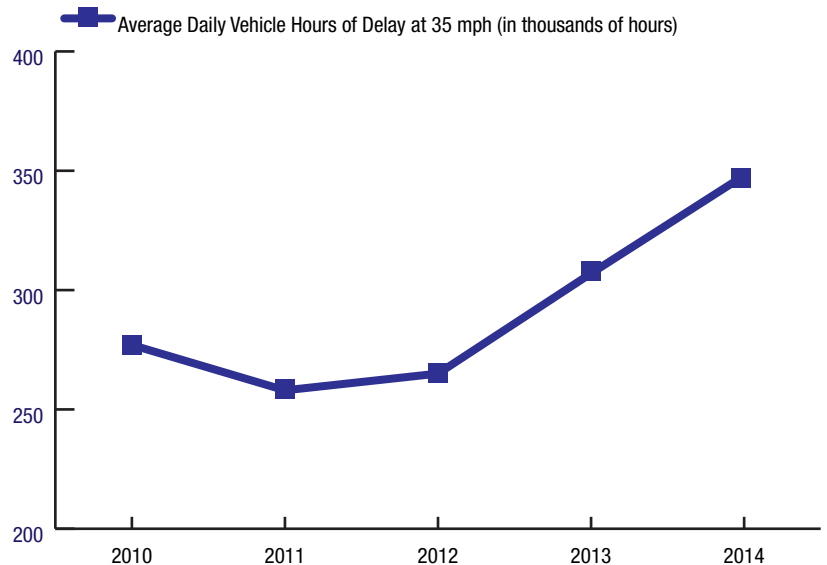
Interstate 80 near Berkeley.

For people using California's highway system, the average daily vehicle hours of delay in 2014 were the highest they had been in 10 years, and 13 percent higher than 2013. While daily vehicle hours of delay have steadily increased, Caltrans aims to manage delay so that by 2020, the daily average hours of delay at 35 miles per hour or below on urban highways does not exceed an 8 percent annual growth rate—instead of the 13 to 15 percent annual growth seen in the last two years.

In 2014, California drivers collectively sat in slow commute traffic for nearly 100 million hours. In order to help commuters make informed travel decisions, Caltrans relays real-time traffic conditions in urban areas through 511 and electronic message signs to provide travel times, notification of incidents, and points of congestion. Caltrans works with its local and regional partners to plan for, and respond to, the needs of a growing customer base: all those who drive, take transit, walk or bike. By working together, Caltrans and its partners can maximize limited resources to reduce travel delay.

Source: Division of Traffic Operations
Contributor: Tim Hart and Rich Stone

Statewide Average Daily Vehicle Hours of Delay



California's general highway speed limit is 65 miles per hour, with 70 miles per hour allowed on a few freeways. The industry standard for measuring delay is 35 miles per hour, with speeds below 35 miles per hour considered heavy congestion. Caltrans measures the loss of time due to congestion as daily vehicle hours of delay. This measure shows that statewide, California motorists collectively sat in bad traffic, or speeds below 35 miles per hour, for an average of nearly 348,000 hours each commute day in 2014. Speeds under 35 miles per hour increase fuel use, which in turn increases greenhouse gas emissions. As a result, Caltrans has set a goal to manage the growth rate of the average daily vehicle hours of delay to 8 percent or less by 2020.

System Efficiency Relies on Incident Clearance

In addition to the tragedy from a collision involving fatalities or serious injuries, the environmental and fiscal costs of highway crashes begin mounting immediately. The Federal Highway Administration (FHWA) estimates that for every minute an incident blocks a lane, it will cause four extra minutes of delay after the incident is cleared. Nationally, each year, traffic incidents are blamed for about 1.4 billion hours of traffic delay that wastes 725 million gallons of fuel, costs \$30 billion in lost economic activity, and produces 16.8 metric tons of carbon dioxide.

For the purpose of performance reporting, Caltrans tracks “major incidents” on the highway, and tabulates the time it takes to clear them from traffic lanes. Caltrans defines major incidents as unplanned, nonrecurring events that reduce highway capacity and require response from both Caltrans and law enforcement personnel. From April to June 2015, Caltrans reported 280 such incidents. Nearly half of them (see chart, p. 24) involved either a fatality, a big rig, a hazardous materials spill, or some combination of the three – the types of incidents that typically cause the longest interruption of traffic. The average clearance time, including such incidents, was 3 hours and 17 minutes. Caltrans’s goal is to clear half of major incidents within 90 minutes, something which it did about a third of the time during the reporting period.

Average Clearance Time per Occurance (in hours)

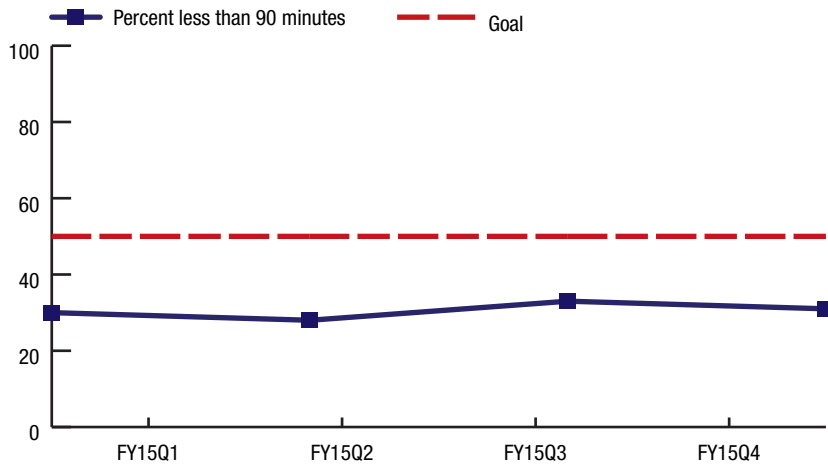
FY15Q1			FY15Q2			FY15Q3			FY15Q4		
Type	No. of Incidents	Avg. Time	Type	No. of Incidents	Avg. Time	Type	No. of Incidents	Avg. Time	Type	No. of Incidents	Avg. Time
Fatal	82	3.08	Fatal	75	3.37	Fatal	68	3.08	Fatal	41	3.91
Big Rig	68	3.55	Big Rig	63	4.55	Big Rig	77	4.44	Big Rig	69	4.78
Hazmat	24	4.72	Hazmat	21	4.53	Hazmat	11	5.55	Hazmat	13	3.58
Other	144	2.41	Other	136	2.61	Other	126	2.65	Other	157	2.44

This table shows average clearance times, in hours, for fatal, big rig, hazmat, and other incidents for the four quarters of fiscal year 2014–15. “Other” represents major incidents that do not include fatalities, big rigs or hazmat but require at least one highway lane closure and the presence of both Caltrans and law enforcement. These can include injury collisions, guardrail damage, possible explosive device, downed power line or utility pole, police activity, or animals that have been hit on the road. While hazmat incidents are the least frequently occurring, they typically take the longest to clear.

Jack-knifed big rig on the Interstate 880/ Interstate 80 connector ramp in Oakland.



Incident Clearance Performance (Statewide)



Caltrans has a goal of clearing at least 50 percent of major incidents in 90 minutes or less. This graph shows that during fiscal year 2014–15, about one-third of those incidents were cleared within the targeted time.

Reducing clearance time alone does not necessarily reduce risk to incident responders. An average of one injury accident occurs every three minutes in California. That means about 184,000 injury accidents each year. Each injury crash requires an average of 15 traffic incident responders from highway maintenance, law enforcement, fire and rescue, emergency medical services and towing. That's about 2.8 million instances in which responders are exposed to traffic while clearing collisions, and in the past five years, 26 of those responders were killed on California's highways.

Hazmat workers cleaning hazardous chemicals that spilled on 880 in Fremont during a big rig incident. Hazmat incidents typically require the most time to clear.

In keeping with the [National Unified Goal](#), an effort toward safety and efficiency for traffic incident management, Caltrans and its partners are training traffic incident-management responders statewide. By having better communication and coordination between the various responders, the intent is to clear incidents more quickly and more safely. Since 2012, Caltrans and the FHWA have trained 390 California incident responders to be instructors for the FHWA's National Traffic Incident Management Responder Training. As of July 2015, those instructors have taught 380 classes and trained more than 7,500 California responders. The course teaches national best practices developed under the [Second Strategic Highway Research Program](#). The training is available at no cost to anyone involved in traffic incident response and includes best practices for detecting, verifying, responding to, and clearing traffic incidents.

California has laws dealing with incident clearance. The "[Move Over](#)" law requires motorists to move over or slow down for emergency response vehicles and is punishable by a \$50 fine if violated. The "[Steer Clear](#)" law requires non-injury accidents to clear the roadway if the vehicles are operable and is punishable by up to \$1,000 in fines and six months in county jail if violated. And, the "[Authority Removal](#)" law allows Caltrans to remove a spilled load from the highway and charge the owner for the cost of the removal or to direct a third party to remove the spilled load without threat of liability for damage to the spilled load.

Source: Division of Traffic Operations
Contributor: Larry Wooster





I-80 SMART* Corridor

* Safety, Mobility, and Automated Real-time Traffic Management

The Interstate 80 SMART Corridor project is an intelligent transportation system that is designed to enhance safety, improve travel time reliability, and reduce accidents and congestion by implementing traffic operations strategies, such as adaptive ramp metering and active traffic management, along a 20-mile section of I-80 from the Bay Bridge Toll Plaza to the Carquinez Bridge.

The I-80 corridor has ranked as one of the most congested corridors in the entire San Francisco Bay Area in the last decade, with traffic volumes reaching more than 310,000 vehicles per day and an average of 7,500 hours of delay daily. Meanwhile, congestion was expected to rise significantly as population increased if this project was not completed. Upon completion, vehicle hours of delay are expected to decrease by 22 percent during the morning commute and by 10 percent in the evening commute. Average freeway speed is expected to increase by 5 percent in the morning.

The project's success will rely on its ability to reduce traffic congestion, improve travel time and reliability, get disabled vehicles off the road quicker after major incidents and reduce greenhouse gases—all elements of the Caltrans mission and each described more in-depth in this issue of the Mile Marker. The key elements to achieving these goals, as described below, will rely on reducing secondary accidents by informing motorists of congestion ahead and activating ramp metering, which will both improve travel time and reduce congestion.

Reduces Traffic Congestion

The implementation of active traffic management will be done by monitoring traffic operations through the use of closed-circuit television cameras and traffic detection devices.

Components include adjusting the ramp metering rate, but also activating various electronic signs to show advisory speed, which lane to merge into if a lane is blocked ahead, travel time and transit information, as well as redirecting detoured traffic back to the freeway past an incident. To improve traffic flow conditions, either during recurring or incident-related congestion, traffic information from the cameras and loops will be transferred to the traffic management center (TMC) to adjust “green time” rates of ramp metering signals and activate various devices, such as variable advisory speed signs, lane use signs and information display boards.

Improves Travel Time Reliability

Travel time reliability is measured by transportation specialists who use a “buffer time index,” the time cushion travelers add to their average travel time to ensure that they get to their destination when planned. Reliable travel means drivers need to add less than 20 percent travel time to the average trip to get to their destination on time 95 percent of the time.

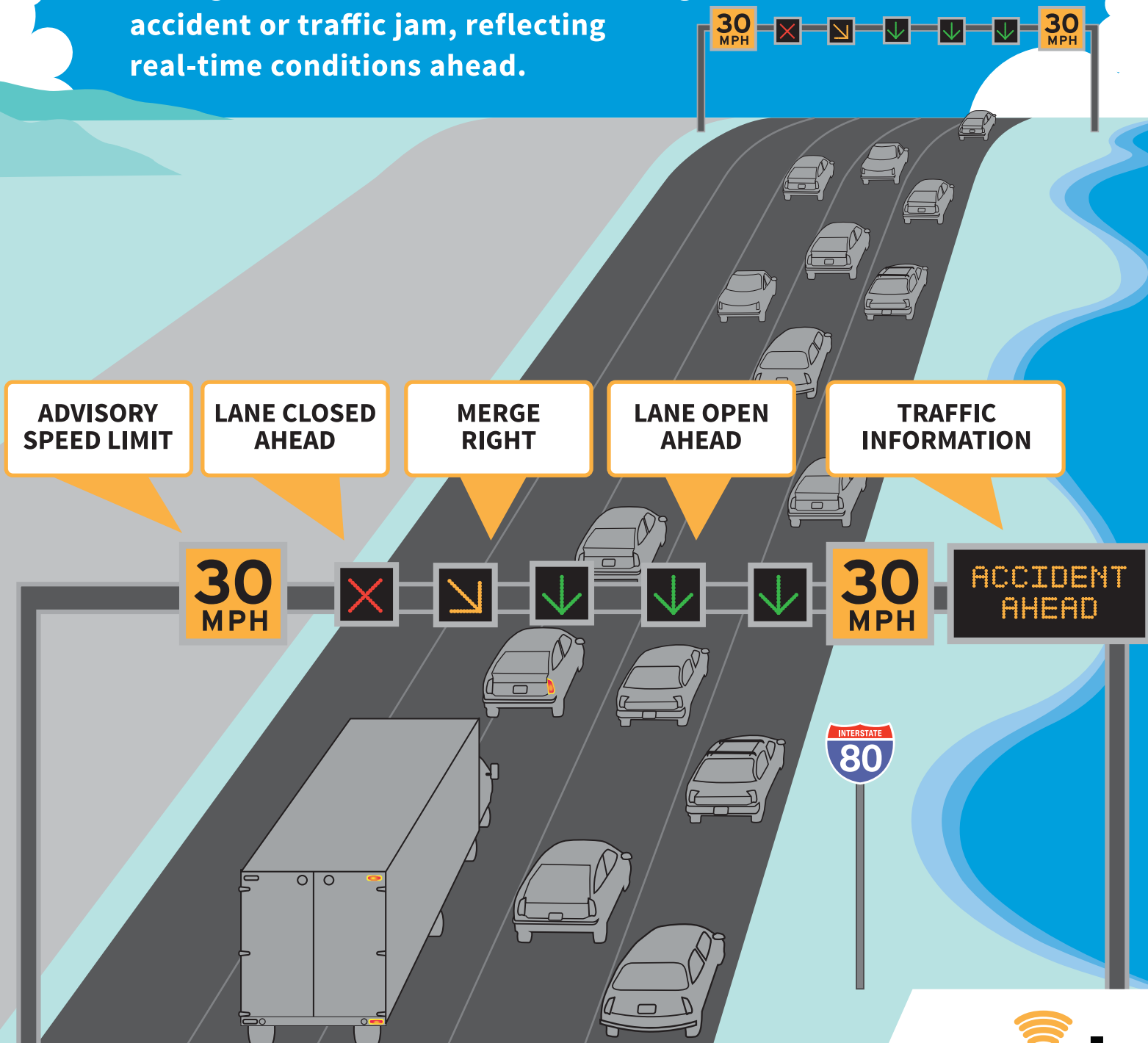
The project's success will rely on its ability to reduce traffic congestion, improve travel time, get disabled vehicles off the road quicker after major incidents and reduce greenhouse gases.

Caltrans uses several methods to measure expected travel time and communicate those times to motorists so they can plan their trip. In this project, some corridor management devices, such as variable message signs and information display boards are being used for the first time in California. Lane use signs will be used to communicate with drivers that the lane is blocked ahead due to a stalled vehicle or incident and the driver should be merging to the adjacent lane. Variable advisory speed signs will be activated in case of an incident that will require vehicles at high speed to slow down ahead of the queue so that secondary accidents can be avoided. A very robust public information and educational outreach plan has been developed and is being implemented. The goal is for drivers to understand the purpose of the project and know how to “react” once the various devices are turned on in late 2015.

The New Overhead Signs on Westbound I-80: A SMARTer Way to Drive



Overhead signs on Westbound I-80 between Richmond and Emeryville will light up when there is an upcoming accident or traffic jam, reflecting real-time conditions ahead.

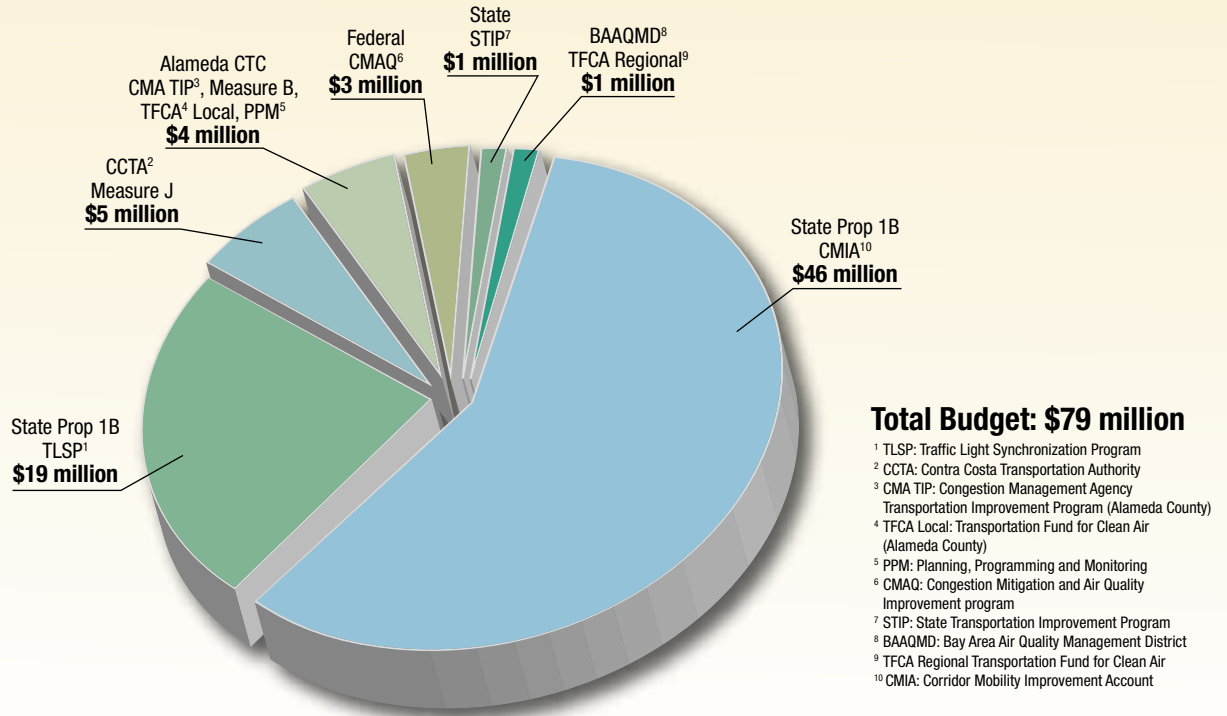


**Giving Drivers More Information
Means Fewer Accidents and a Safer I-80**



I-80 SMART Corridor Project

Most Funding Comes from Voter-Approved Sources



Speeds Up Incident Clearances

The I-80 SMART Corridor project incident management component provides real-time information to motorists in the event of an incident to reduce unexpected lane changes, provide easier access for emergency response vehicles and reduce secondary accidents and congestion associated with such incidents.

The information gathered through vehicle detection devices will alert the TMC operator about any traffic incidents and/or congestion. The operator then can monitor the freeway and ramps via closed-circuit television cameras, activate incident response strategies, and display real-time traveler information to the motorists on the freeway. During any major incidents on the freeway, the TMC operator would also coordinate the emergency response with local authorities to ensure a coordinated and efficient response. Electronic signage provides advance warning of accidents, improves safety and guides detouring drivers back to I-80.

Reduces Greenhouse Gases

All of the above actions are created to keep traffic flowing more smoothly and predictably on I-80. Traffic congestion is a known contributor to greenhouse gases as idling cars burn fuel less efficiently (with fewer miles per gallon). One of the project elements that helps reduce idle time and increase vehicle throughput is adaptive ramp metering.

The adaptive ramp meters play an important role in the control functions of the network and the incident management, by creating a balanced traffic flow along the entire corridor and minimizing the impacts of merging traffic onto the freeway. Adaptive ramp metering will include varying metering rates based on changing upstream and downstream freeway conditions while balancing the ramp queue to avoid impacts on the local streets.

Key partners in the project included the Federal Highway Administration, Caltrans, Alameda County Transportation Commission and Contra Costa Transportation Agency, California Highway Patrol, and West Contra Costa Transportation Advisory Committee, which has members from cities in Contra Costa county and transit agencies.

Source: Caltrans District 4

Contributor: Cristina Ferraz and Dina El-Nakhal

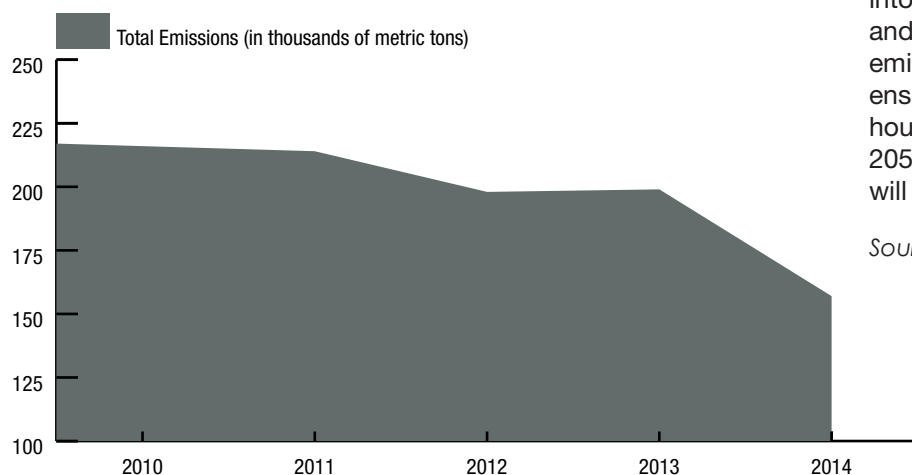
Caltrans Measures Reduction in Greenhouse Gases from Its Operations

The Climate Change Branch of Caltrans' Division of Transportation Planning collects data on the greenhouse gases emitted from Caltrans' fleet of vehicles, assortment of buildings and network of lights and signals.

Overall, greenhouse gas emissions from those sources have declined from 217,485 metric tons in 2010 to 157,185 metric tons in 2014. The most dramatic decrease came from a reduction of emissions associated with street lighting, which includes roadway lights, message boards, signage illumination and traffic signals.

Greenhouse Gases 2010-2014 (in metric tons)					
	2010	2011	2012	2013	2014
Vehicle Fuels	118,042	115,118	112,758	108,810	105,338
Building Electricity & Gas	35,336	38,019	29,028	36,075	30,039
Street Lighting	64,107	61,270	56,638	54,339	21,808
Total Emissions	217,485	214,407	198,424	199,224	157,185

Until last year, street lighting showed the same gradual decrease as the other measured sources, but as Caltrans switched to efficient LED lighting, greenhouse gas emissions from lighting dropped more than half, from 54,339 metric tons in 2013 to 21,808 metric tons in 2014. The decrease in emissions runs parallel with the increase of efficient lighting. In 2012, Caltrans' LED inventory was about 1,500. By 2014, that inventory had grown to about 23,000.



Caltrans' 12,000-piece fleet of cars, trucks and maintenance vehicles emitted 112,758 metric tons of greenhouse gases in 2012. By 2014, that number had been reduced to 105,338, likely due to a combination of fleet management practices and an increase in the number of low- and zero-emission vehicles.

Governor Brown's Executive Order [B-18-12](#) directed all state agencies to take steps to make state buildings more sustainable and energy efficient. To comply, Caltrans is requiring that all new buildings be designed to meet Leadership and Energy and Environmental Design (LEED) Silver or better certification rating standards. LEED is an international certification and verification program that strives to conserve resources through wiser "green" building design. In July, the new Maintenance Complex that will service the San Francisco-Oakland Bay Bridge opened with a Gold LEED rating. Building-related emissions were reported at 38,109 metric tons in 2011, and have decreased to 30,039 metric tons in 2014.

Although this data set does not include all the emissions within the department's operations nor all emissions identified in Caltrans' 2015–20 Strategic Management Plan—which is designed to provide a safe, sustainable, integrated and efficient system to enhance California's economy and livability—it represents a large percentage.

In April, Governor Brown issued Executive Order [B-30-15](#), requiring state agencies to take climate change into account in their planning and investment decisions and to implement measures to reduce greenhouse gas emissions. It is intended to step up California's efforts to ensure the state can meet its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Caltrans efforts will increase, and those increases will be reflected in future Mile Markers.

Source: Division of Transportation Planning,
Climate Change Branch
Contributor: Julia Biggar

\$25K Find A New WaySM



Someone had to think of it first. Will it be you? Your innovative idea could earn you \$25,000!

From crash barriers to reflective signs, when it comes to improving the state's transportation system, we at Caltrans know there's no such thing as having too many great ideas. That's why we want yours!

You can win \$25,000 by entering one of three State of California "25K Find A New Way" Innovation Award contests. Simply submit your idea before 5:00 p.m. PDT on Oct. 13, 2015.

Caltrans will announce the contest winner by Dec. 31, 2015.



To learn more about the contests and rules, and to submit an application online, visit www.findanewway.ca.gov or use a QR reader on your mobile device to scan the QR code. Check us out on social media using hashtag: #25KFindANewWay.



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State Highway Operation and Protection Program
<http://www.dot.ca.gov/hq/transprog/shopp.htm>

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